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*Published in:*  
Journal of Psychosomatic Research

*Publication date:*  
2010

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*  
Leentjens, A. F., Boenink, A. D., & van der Feltz-Cornelis, C. M. (2010). Can we increase adherence to treatment recommendations of the consultation psychiatrist working in a general hospital? A systematic review. *Journal of Psychosomatic Research*, 68(3), 303-309.

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# Can we increase adherence to treatment recommendations of the consultation psychiatrist working in a general hospital?

## A systematic review

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Received 25 May 2009; received in revised form 7 July 2009; accepted 9 July 2009

### Abstract

**Background:** Adherence to advice given by the consultation–liaison (CL) psychiatrist is a prerequisite for the effectiveness and success of psychiatric consultation. It is unknown which factors are associated with better adherence to advice. **Aim:** To review the adherence of consultees with advice given by the psychiatrist during inpatient consultation. **Method:** Systematic literature review. **Results:** Eighteen studies reported on the level of adherence with recommendations given by the consultation psychiatrist in a hospital setting. All were retrospective cohort studies conducted before 1998. Thirteen of these reported on the association between clinical variables and the level of adherence. The median level of adherence with diagnostic advice was 56% (range 29–75%), with medication advice 79% (range 68–98%),

and with discharge advice 91% (range 85–95%). Patient-related variables were not associated with adherence, nor were consultee-related variables. Consultant-related variables associated with adherence were level of professional expertise, organizing liaison activities, following up on patients after initial consultation, and prescription of medication by the consultant during the consultation. **Conclusion:** This review provides evidence for a role of consultant characteristics and an active approach of the consultant in terms of CL activities as well as consultation procedures, in attaining adherence to advice. Prospective qualitative research is needed to identify consultation methods that may further enhance adherence.

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**Keywords:** Consultation psychiatry; Liaison psychiatry; Adherence; Concordance

### Introduction

Although consultation–liaison (CL) psychiatry is increasingly evolving towards psychosomatic medicine, with its emphasis on broader and more proactive multidisciplinary collaborations, performing psychiatric consultations at the request of other medical specialists still constitutes an important activity of CL psychiatrists working in medical settings. In this setting, the CL psychiatrist sees the patient upon request of another medical specialist. After assessment

of the patient, the consultant communicates his findings with the consultee and advises on further diagnostic procedures or treatment. This interdisciplinary consultation can only be effective if the recommendations given by the psychiatric consultant are followed up by the consultee. In order to improve the effectiveness of psychiatric consultations, it is important to identify factors that are associated with an improved adherence to advice. Of special interest are factors that can be influenced by the consultant himself, because addressing these factors can contribute to a more effective consultation.

The aim of this review was to identify factors that are associated with adherence to advice given in the context of psychiatric consultation in patients admitted to a general or academic hospital, and to identify factors that may be

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influenced in order to improve adherence to advice. This review is limited to psychiatric consultations given in general and academic hospitals. It does not pertain to consultations in general practice, nursing homes, and categorical institutions. This systematic review summarizes, updates, and extends a corresponding section of the guideline on ‘Consultation Psychiatry’ of the Dutch Psychiatric Association [1,2].

## Methods

A systematic literature search was performed in Medline and Psychinfo. The initial search selected original research publications containing terms such as ‘psychiatric consultation’ or ‘psychiatric service’ in free text, plus controlled index terms such as ‘explode psychiatry/all’ for Medline and ‘Consultation-Liaison-Psychiatry’ for Psychinfo. This initial

set was then combined with the additional terms ‘concordance,’ ‘adherence,’ and ‘compliance’. Only articles in English, Dutch, German, or French were selected in the period up until December 2008, describing studies performed in the general hospital or academic hospital setting. In addition, relevant studies were taken from the reference lists of retrieved articles, and articles known to the working group were included. The full search strategy can be found in the guideline [2].

This study is purely descriptive and no statistical analyses were performed.

## Results of the literature search

The search strategy yielded 67 hits in Medline and 19 in Psychinfo, 13 of which overlapped with the Medline search.

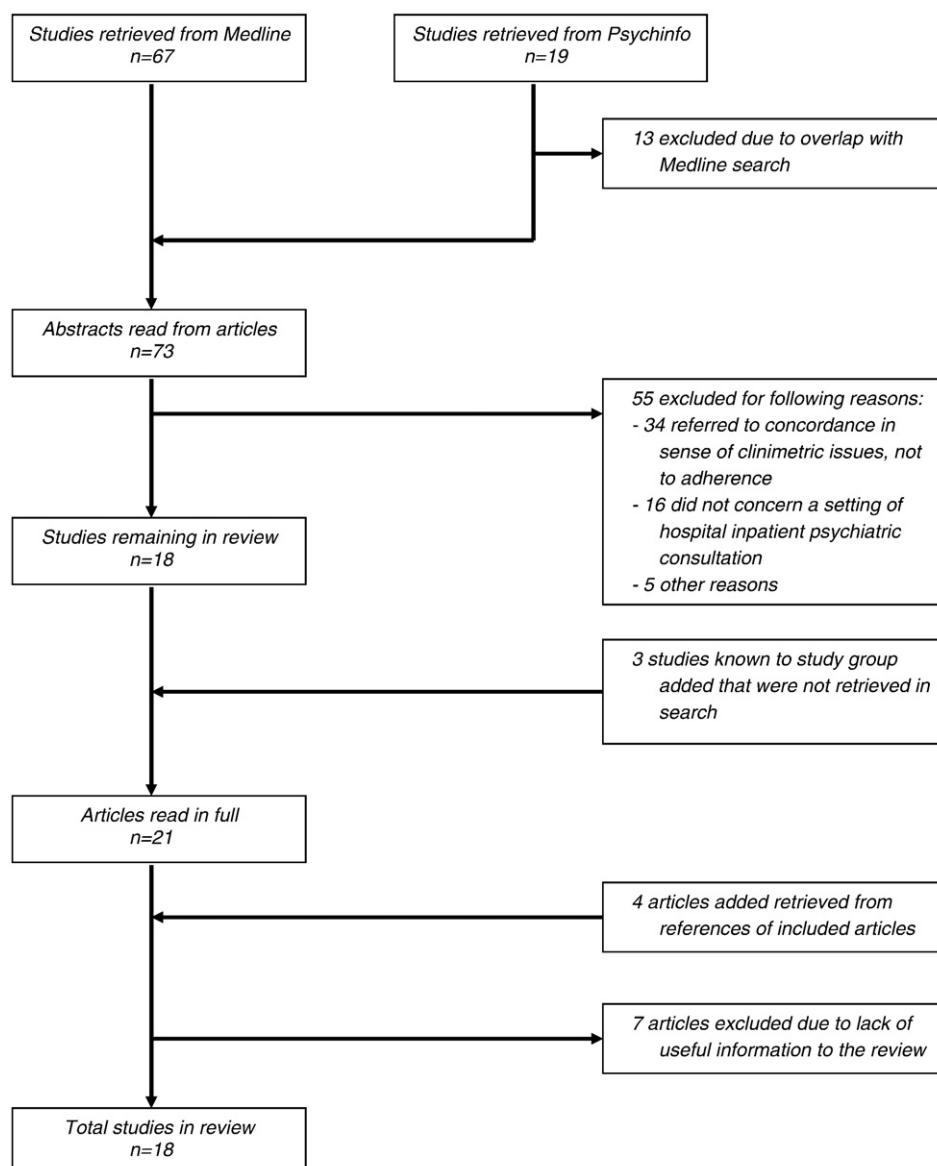


Fig. 1. QUORUM diagram showing results of the literature search.

Of the articles found in Medline, 18 were included and 49 excluded on the basis of the abstracts. Articles were excluded for the following reasons: they dealt with ‘concordance’ in the sense of a correlation between two measurement instruments ( $n=25$ ), they dealt with concordance in the

sense of interrater reliability ( $n=4$ ), the setting was not one of hospital inpatient consultation ( $n=16$ ), or other reasons ( $n=4$ ). All six of the articles retrieved by Psychinfo only were excluded: three because they dealt with ‘concordance’ in the sense of correlation between two measuring instruments, two

Table 1

Overview of studies (in chronological order) that report on the association of adherence with one or more clinical variables, and their main outcome

Study	Type	Population	Control condition	N	Outcome
Billowitz and Friedson, 1978/1979 [7]	Retrospective, descriptive	Clinical admissions		273	Surgeons are less compliant than internists and gynecologists Follow-up advice from a psychologist is complied with less than that from a psychiatrist
Popkin et al., 1979 [3]	Retrospective, descriptive	Clinical admissions		200	Advice to start with a medication is complied with better than change or stop medication
Van Dyke et al., 1980 [8]	Retrospective, descriptive	Clinical admissions		55	Compliance is not related to the nature of the advice
Popkin et al., 1981 [4]	Retrospective, descriptive	Clinical admissions		394	Compliance is better if <ul style="list-style-type: none"> <li>– The patient’s age is &gt;60</li> <li>– The patient already uses psychiatric medication</li> <li>– The advice is given during the first half of the co-treatment period</li> <li>– Surgeons are more compliant than internists</li> <li>– The nature of the somatic disease</li> <li>– The nature of the medication advice</li> <li>– There are follow-up contacts</li> </ul>
MacKenzie et al., 1981 [9]	Retrospective, descriptive	Clinical admissions		394	Medication advice is followed up better than diagnostic advice
Popkin et al., 1983 [5]	Retrospective, descriptive	Clinical admissions		394	Compliance is independent of <ul style="list-style-type: none"> <li>– The nature of the advice</li> <li>– The type of medication advised</li> <li>– The nature of the psychiatric diagnosis</li> <li>– The nature of the requesting specialty (with the exception of the poorer compliance by surgeons)</li> </ul>
Popkin et al., 1984 [6]	Retrospective, descriptive	Clinical admissions		1072	Medication advice is followed up better than diagnostic advice Compliance is independent of the age of the patient
Lanting and Hengeveld, 1984 [11]	Retrospective, descriptive	Clinical admissions		90	Compliance is independent of <ul style="list-style-type: none"> <li>– The patient’s age</li> <li>– The patient’s gender</li> <li>– The referring discipline</li> <li>– The current use of medication</li> <li>– The professional level of the consultant</li> <li>– The time at which the consultation is requested</li> </ul>
Wise et al., 1987 [12]	Retrospective, descriptive	Clinical admissions		200	Compliance is better if the consultant orders the medication himself
De Leo et al., 1989 [19]	Retrospective, descriptive; historical comparison	Geriatric admissions	Consultation on request	607	Compliance is better if there is an integrated CL service and intensive follow-up
Seward et al., 1991 [16]	Retrospective, descriptive	Clinical admissions		405	Compliance is better if the patient was seen by the specialist himself
Huyse et al., 1992 [13]	Retrospective, descriptive	Clinical admissions		316	Compliance is independent of <ul style="list-style-type: none"> <li>– The patient’s age and gender</li> <li>– The somatic disease</li> <li>– The psychiatric diagnosis</li> </ul> Compliance is better if <ul style="list-style-type: none"> <li>– Advice is given earlier during the hospital stay</li> <li>– The consultant has a higher level</li> <li>– There are multiple recommendations</li> </ul>
Huyse et al., 1993 [14]	Retrospective, descriptive	Clinical admissions		317	Compliance with discharge recommendations is better if they are given early during the consultation Compliance with a recommendation for psychosocial diagnostics is better if given later during the consultation

because they dealt with ‘concordance’ in the sense of interrater reliability, and one for another reason. From the reference lists of retrieved articles, four additional articles were included. Three articles with which the working group was familiar but which had not been retrieved by the search strategy were also included. The 25 remaining articles were read, after which an additional seven articles were excluded for various other reasons. A total of 18 articles remained for evaluation, as indicated in the QUORUM diagram (Fig. 1).

## Summary of the literature

All 18 included studies were retrospective cohort studies carried out in order to provide a naturalistic description of clinical practice [3–20]. All these studies can be classified as

type C studies according to the grades of recommendation as formulated by the Oxford Centre for Evidence-Based Medicine. All have been carried out in the period 1979–1998 and were situated in university hospitals where consultation psychiatry was an area of special interest. Although all articles described levels of adherence to recommendations, 13 of the 18 studies addressed the relation between the level of adherence and one or more clinical variables. An overview of these 13 studies with their outcomes is shown in Table 1.

## Levels of adherence to recommendations

In a hospital setting, medication advice was followed up in 68–98% (median 79%) of the cases, while diagnostic

Table 2

Summary of variables and their association with the degree to which the advice of the consultation psychiatrist is followed up

Variable	Better adherence	No relation to adherence
<i>Patient-related variables</i>		
Higher age of the patient	Popkin et al., 1981 [4]	Popkin et al., 1984 [6] Lanting and Hengeveld, 1984 [11] Huyse et al., 1992 [13]
Gender of the patient		Lanting and Hengeveld, 1984 [11] Huyse et al., 1992 [13]
Nature of the somatic diagnosis		Huyse et al., 1992 [13]
Nature of the psychiatric diagnosis		Popkin et al., 1983 [5] Huyse et al., 1992 [13]
Current use of psychiatric medication	Popkin et al., 1981 [4]	Lanting and Hengeveld, 1984 [11]
<i>Consultant-related variables</i>		
Higher level of professional development	Lanting and Hengeveld, 1984 [11]	Seward et al., 1991 [16] Huyse et al., 1992 [13]
Providing follow-up contacts	Popkin et al., 1981 [4]	
Liaison activities	De Leo et al., 1989 [19]	
Prescription of the medication by the consultation psychiatrist	Wise et al., 1987 [12]	
<i>Consultee-related variables</i>		
Nature of the discipline requesting the consultation	Billowitz and Friedson, 1978/1979 <sup>a</sup> [7] Popkin et al., 1981 <sup>b</sup> [4] Popkin et al., 1984 <sup>c</sup> [6] Popkin et al., 1981 [4] Huyse et al., 1992 [13] Huyse et al., 1993 <sup>d</sup> [14]	Lanting and Hengeveld, 1984 [11]
Consultation earlier during the hospital stay		
<i>Variables related to the nature of advice given</i>		
Nature of the advice: medication advice is adhered to better than diagnostic advice or a recommended psychosocial intervention.	Billowitz and Friedson, 1978/1979 [7] Popkin et al., 1981 [4] Mackenzie et al., 1981 [9] Popkin et al., 1984 [6] Huyse et al., 1993 [14] Von Gunten and Villos, 1998 [18]	Van Dyke et al., 1980 [8] Popkin et al., 1983 [5]
Type of medication		Popkin et al., 1983 [5] Lanting and Hengeveld, 1984 [11]
Nature of the medication advice	Popkin et al., 1979 <sup>e</sup> [3]	Seward et al., 1991 [16]

<sup>a</sup> Surgeons less adherent than internists or gynecologists.

<sup>b</sup> Surgeons are more compliant.

<sup>c</sup> Surgeons are less compliant only with diagnostic, but not with therapeutic advice.

<sup>d</sup> Better adherence for discharge advice if given early during admission, but diagnostic advice is followed up better if given later during the hospital stay.

<sup>e</sup> Starting newly prescribed medication is less often adhered to than a change in or discontinuation of current medication.

advice was followed up in 29–75% (median 56%) of the cases. Recommendations pertaining to referral after discharge were best complied with in 85–95% (median 91%) of the cases. One single study assessed compliance with advice for psychosocial interventions and found an adherence of 99%, but in 55% of cases, these recommendations were implemented by the consultant himself [12]. Another study compared the degree of adherence to medication and diagnostic advice from the consultation psychiatrist with that from the consultation cardiologist. The advice from the cardiologist was better adhered to than that from the psychiatrist, and this was the case for both diagnostic and therapeutic advice [4].

### Factors associated with adherence

In the following section, factors associated with adherence to psychiatric advice were categorized as patient-related variables, consultant-related variables, consultee-related variables, variables related to the nature of the advice, and organizational variables.

An overview of factors associated with adherence to advice of the included studies is given in Table 2.

#### *Patient-related variables*

Patient-related variables studied in relation to adherence with advice are age and sex of the patient, the nature of the medical and the psychiatric disorder, and the current use of psychiatric medication. Although one study ( $n=273$ ) indicates that higher age of the patient is associated with increased adherence to advice [4], this is not supported by three other studies (combined  $n=1478$ ) [6,11,13]. None of the studies reported an association between adherence and any of the other studied patient-related variables [5,6,11,13], although one study showed increased adherence with advice given for patients who are already using psychotropic medication [4].

#### *Consultant-related variables*

Three studies assessed the association between the professional level of the consultant and adherence to advice. This yielded contradictory results. Two studies (combined  $n=721$ ) supported the association of higher professional level with better adherence [13,16], while one study ( $n=90$ ) did not report such an association [11]. Other consultant-related variables that improved adherence were following up patients after the initial consultation [4], the organization of liaison activities [19], and prescription of advised medication by the consultant himself [12].

#### *Consultee-related variables*

Contrasting evidence has been found for the association between adherence to advice and the nature of the requesting

discipline. One study ( $n=394$ ) reported better adherence by surgeons when compared to internists [4]; two other studies (combined  $n=1345$ ) reported less adherence by surgeons and gynecologists when compared to internists [6,7]. A fourth study ( $n=90$ ) reported no difference between the requesting physicians' discipline, with the exception of less adherence by surgeons [11]. In general, adherence is better if a consultation is requested early during admission [4,13]. One study reports that this is true only for discharge advice, but not for diagnostic advice, which in this study was better complied with in later stages of the admission [14].

#### *The nature of advice given*

As stated above, medication advice is better followed than diagnostic advice or advice about communication strategies and attitudes advice [4,6,7,9,14,18]. The nature of the medication and the type of medication-related advice do not seem to matter [5,11,16], although one study reported better adherence when changing the dose or discontinuation is advised when compared to starting new medication [3].

#### *Organizational factors*

No study has directly assessed how adherence to advice is related to the embedding of the consultant psychiatrist in the organization. Brown [20] conducted a retrospective study in over 5000 consultations related to attempted suicide. Outcome was the number of repeat presentations within the first half year after assessment. It appeared that consultations performed by psychiatrists employed by the organization were more effective than consultations performed by visiting psychiatrists employed by another organization [20].

### Discussion

This is the first systematic review of studies that report on factors associated with adherence to advice given during inpatient consultation by the CL psychiatrist. Surprisingly few studies have addressed issues that determine the adherence to recommendations given in the context of psychiatric consultation. All studies were descriptive studies. In our systematic review, the most recent studies specifically addressing the topic of adherence to advice given during psychiatric consultation were published more than 10 years ago.

As a rule, discharge advice, such as transfer, referral, or out-patient psychiatric follow-up, is best complied with. This is not surprising as, in line with most clinicians' expectations, most consultation psychiatrists tend to arrange these kinds of advice themselves [21]. This is especially so for consultations in relation to suicide attempts. For this reason, and perhaps also because of the short duration of stay of these patients, some of the studies have explicitly excluded



patients admitted for suicide attempts [11,13–15]. Medication advice is relatively well adhered to, and diagnostic advice worst. The reasons for this can only be speculated about since no study has addressed the attitudes or beliefs of consultees about psychiatric advice. Prescribing medication is easy and part of the normal routine on a hospital ward, which may explain the high level of adherence. Clinicians may question the need for further diagnostic interventions with relation to psychiatric symptoms or fear an unnecessary extension of hospital stay. The question whether a consultant should prescribe medication himself during a consultation has not been systematically addressed in the studies at hand. If the consultant writes the medication orders himself, adherence with the consultation advice will obviously improve, as it will not depend on actions taken by the consultee. However, in this case, the consultant must be aware of the fact that he bears the responsibility not only for the prescription of the medication, and for the possible interactions or complications, but also for good communication on this point with the attending physician who must always retain an overview of the overall treatment of the patient [12] and with the nursing staff who has to hand out the medication. One possibility to overcome potential problems is to have the attending physician cosign the medication form written by the consultant psychiatrist.

This review provides evidence that trying to establish that consultation requests early during admission provides more time to assess the patient and increases adherence to advice. Providing follow-up contacts in case of diagnostic or therapeutic advice gives the opportunity to check whether previous advice has been followed, and if this is not the case, to remind the consultee or to insist on compliance with the advice. In addition, since advice given by more senior staff members is better adhered to than advice given by junior doctors, opportunity for bedside supervision and close supervision of junior doctors should be created. These simple interventions increase adherence to advice and may therefore contribute to the effectiveness of psychiatric consultation. For this reason, they are to be recommended in everyday clinical practice. Whether these interventions can indeed be achieved in clinical practice depends largely on the way the psychiatrist is embedded in the institution in which he does his consultations. If well embedded, the consultation psychiatrist can establish working relations with his colleagues, invest in liaison activities, and influence working conditions and the conditions of collaborations, with the aim of improving the effectiveness of consultation and thus patient care. Moreover, investing in liaison activities improves the relationships with colleagues and increases the opportunities to appreciate each other's knowledge and experience.

This study has several limitations. First of all: due to the broadness of the subject and the multiplicity of terms, settings, and syndromes, it is difficult to estimate the extent to which the search strategy resulted in complete retrieval of the available literature. On the basis of their own expertise, and the comments by peers in the process of validation of the

Dutch CL guideline, the authors expect to have identified most publications related to the subject. A second limitation is that all of the studies, except two, were carried out in university hospitals where consultation psychiatry was given special attention. This may have biased the results in the direction of better adherence and may affect generalizability to other hospital settings. Moreover, many of the studies were purely descriptive and the comparison of the degree of compliance with recommendations in different fields was not subjected to statistical analysis. For many of the associations mentioned in this study and listed in Table 2, there is only limited evidence from one single study or only a few studies. Although it may be expected that better adherence with advice given will increase the effectiveness of consultation and patient outcome, this remains to be demonstrated by experimental studies specifically addressing this issue. Other studies have assessed aspects that may be related to adherence and effectiveness, but have not specifically assessed these outcomes. It was shown for instance that tailoring the consultation advice to the needs and expectations of the referring department increases satisfaction with consultation and increases the number of referrals [22]. This also leads to better and focused reasons for requesting a consultation and a decrease in emergency consultation requests [23].

## Conclusion

This systematic review of factors associated with adherence to advice given in the context of psychiatric consultation in a hospital setting provides evidence for common sense interventions to improve the effectiveness of psychiatric consultation. Investing in liaison activities, following up on patients, considering prescribing psychiatric medication on wards that request the consultation, and more direct involvement of more senior staff members increase adherence to advice. Although in many areas CL psychiatry is developing into more structural collaborations around specific patient groups, psychiatric consultations still constitute a big part of the work of CL psychiatrists. For this reason, research addressing the procedural aspects of routine psychiatric consultations should not be neglected.

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